General

Guideline Title

Final recommendation statement: thyroid cancer: screening.

Bibliographic Source(s)

Final recommendation statement: thyroid cancer: screening. [internet]. Rockville (MD): U.S. Preventive Services Task Force (USPSTF); 2017 May [7 p]. [34 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: U.S. Preventive Services Task Force. Guide to clinical preventive services. 2nd ed. Baltimore (MD): Williams & Wilkins; 1996. Chapter 18, Screening for thyroid cancer. p. 187-91. [25 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

The U.S. Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and identifies the Levels of Certainty regarding Net Benefit (High, Moderate, and Low). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Summary of Recommendation and Evidence

The USPSTF recommends against screening for thyroid cancer in asymptomatic adults (D recommendation).

Clinical Considerations

Patient Population under Consideration

This recommendation applies to screening in asymptomatic adults. It does not apply to persons who experience hoarseness, pain, difficulty swallowing, or other throat symptoms or persons who have lumps, swelling, asymmetry of the neck, or other reasons for a neck examination. It also does not apply to persons at increased risk of thyroid cancer because of a history of exposure to ionizing radiation (e.g., medical treatment or radiation fallout), particularly persons with a diet low in iodine, an inherited genetic syndrome associated with thyroid cancer (e.g., familial adenomatous polyposis), or a first-degree relative with a history of thyroid cancer.

Assessment of Risk

Although the USPSTF recommends against screening in the general asymptomatic adult population, several factors substantially increase the risk for thyroid cancer, including a history of radiation exposure to the head and neck as a child, exposure to radioactive fallout, family history of thyroid cancer in a first-degree relative, and certain genetic conditions, such as familial medullary thyroid cancer or multiple endocrine neoplasia syndrome (type 2A or 2B).

Screening Tests

Although screening for thyroid cancer using neck palpation and ultrasound of the thyroid has been studied, the USPSTF recommends against screening in the general asymptomatic adult population.

Treatment and Interventions

Surgery (i.e., total or partial thyroidectomy, with or without lymphadenectomy) is the main treatment of thyroid cancer. Additional treatment, including radioactive iodine therapy, may be indicated, depending on postoperative disease status, tumor stage, and type of thyroid cancer. External-beam radiation therapy and chemotherapy are not generally used to treat early-stage, differentiated thyroid cancer.

Definitions

What the United States Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read the "Clinical Considerations" section of the USPSTF Recommendation Statement (see the "Major Recommendations" field). If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence

Level of Certainty	Description
Low	As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion. The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Thyroid cancer

Guideline Category

Prevention

Screening

Clinical Specialty

Endocrinology

Family Practice

Internal Medicine

Oncology

Preventive Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To update the U.S. Preventive Services Task Force (USPSTF) recommendation on screening for thyroid cancer

Target Population

Asymptomatic adults

Note: This recommendation does not apply to persons who experience hoarseness, pain, difficulty swallowing, or other throat symptoms or persons who have lumps, swelling, asymmetry of the neck, or other reasons for a neck examination. It also does not apply to persons at increased risk of thyroid cancer because of a history of exposure to ionizing radiation (e.g., medical treatment or radiation fallout), particularly persons with a diet low in iodine, an inherited genetic syndrome associated with thyroid cancer (e.g., familial adenomatous polyposis), or a first-degree relative with a history of thyroid cancer.

Interventions and Practices Considered

Screening for thyroid cancer using neck palpation and ultrasound

Major Outcomes Considered

- Key Question 1: Compared with not screening, does screening adults for thyroid cancer lead to a reduced risk of thyroid-specific mortality or morbidity, reduced all-cause mortality, and/or improved quality of life?
- Key Question 2: What are the test performance characteristics of screening tests for detecting malignant thyroid nodules in adults?
- Key Question 3: What are the harms of screening adults for thyroid cancer?
- Key Question 4: Does treatment of screen-detected thyroid cancer reduce thyroid-specific mortality or morbidity, reduce all-cause mortality, and/or improve quality of life?
- Key Question 5: What are the harms of treating screen-detected thyroid cancer?

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the Kaiser Permanente Research Affiliates Evidence-Based Practice Center (EPC) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Sources and Searches

MEDLINE, PubMed, and the Cochrane Central Register of Controlled Trials were searched to locate primary studies that informed the key questions (KQs) and that were published from January 1966 through January 2016 (see eMethods in the systematic review supplement). The database searches were supplemented with expert suggestions and by reviewing reference lists from existing relevant systematic reviews. ClinicalTrials.gov and the WHO International Clinical Trials Registry Platform were searched for ongoing trials. Since January 2016, the systematic review authors continued to conduct ongoing surveillance through article alerts and targeted searches of high-impact journals to identify major studies published in the interim that may affect the conclusions or understanding of the evidence and therefore the related USPSTF recommendation. The last surveillance was conducted in December 2016. No studies were identified that would substantively change this review's interpretation of findings or conclusions.

Study Selection

Two investigators independently reviewed titles, abstracts, and full-text articles against the specified inclusion criteria for studies of thyroid cancer screening, diagnostic accuracy, or treatment in screen relevant or asymptomatic adults. Discrepancies were resolved through consensus and consultation with a third investigator.

For screening questions (KQ1 through KQ3), any studies of asymptomatic adult populations were included, either those at general risk (e.g., unselected) or those with prior personal history of radiation exposure. Populations were excluded if they were selected based on high radiation exposure due to environmental disasters, inherited genetic syndromes associated with a high risk for developing thyroid cancer, or a personal history of thyroid cancer. Diagnostic accuracy studies of palpation or ultrasound had to include a reference standard (ultrasound for detection of nodules on palpation; histopathology results from fine-needle aspiration or surgery for detection of cancer on ultrasound), applied to both screen-positive and screen-negative persons (e.g., all or a random subset of screen-negative persons). For screening effectiveness (KQ1), any patient health outcome of reduced morbidity or mortality associated with thyroid cancer was included. For test performance (KQ2), cancer detection rates and measures of diagnostic accuracy (e.g., sensitivity, specificity, positive and negative predictive values) were included. For harms of screening (KQ3), direct harms of palpation and ultrasound, subsequent harms of diagnostic fine-needle aspiration, and measures of overdiagnosis were included. For overdiagnosis, studies that compared screened vs. unscreened groups were sought. Studies that examined the increasing incidence of thyroid cancers, studies of the incidence and natural history of thyroid nodules and cancers, and autopsy studies were not included but are summarized in the "Discussion" section of the systematic review.

For treatment questions (KQ4 and KQ5), any studies of thyroid surgery (complete thyroidectomy, near-total thyroidectomy, lobectomy), with or without lymph node dissection or with or without radioactive iodine ablation, were included. Studies of chemotherapy, external beam radiation, and other nonsurgical ablative treatment other than radioactive iodine were excluded. To approximate the treatment of screen-detected cancers, treatment studies including persons with metastatic disease or anaplastic thyroid cancers were excluded. For treatment benefit (KQ4), studies had to have a control group (e.g., untreated, surveillance, delayed treatment). To assess the benefit of treatment, the patient health outcomes of recurrence, mortality, and quality of life were considered. For treatment harms (KQ5), studies were not required to include a control group for direct procedural harms (e.g., hypoparathyroidism, recurrent laryngeal nerve palsy) but needed a control group for other types of harms (e.g., second primary malignancies from radioactive iodine therapy). The evolution of standard of care for the diagnostic workup (e.g., use of ultrasound-guided fine-needle aspiration) and treatment of thyroid cancer over time has resulted in a change in the case mix of patients getting surgery with or without lymph node dissection or radioactive iodine therapy, as well as improvements in surgical techniques and radioactive iodine administered activity (doses) over time. To identify the most applicable evidence, studies conducted before 1990 and single-surgeon case series were excluded.

Number of Source Documents

A total of 10,424 unique abstracts and 707 full-text articles were reviewed. Of these, 67 unique studies were included: 10 studies of screening test performance (n = 203,718), 3 studies of screening harms (n = 5,894), 2 studies of treatment benefits (n = 39,211), and 52 studies of treatment harms (n = 335,091).

See the literature search flow diagram (Figure 2) in the systematic review (see the "Availability of Companion Documents" field) for a summary of evidence search and selection.

Articles included for Key Questions:

- Key Question 1: 0 articles
- Key Question 2: 10 articles (10 studies)
- Key Question 3: 3 articles (3 studies)
- Key Question 4: 5 articles (2 studies)
- Key Question 5: 53 articles (52 studies)

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Two reviewers independently critically appraised all articles that met inclusion criteria using the U.S. Preventive Services Task Force (USPSTF) design-specific quality criteria supplemented by the Newcastle Ottawa Scales for cohort and case-control studies and by QUADAS (Quality

Assessment of Diagnostic Accuracy Studies) and QUADAS II for studies of diagnostic accuracy (see eTable 1 in the systematic review supplement [see the "Availability of Companion Documents" field]). Articles were rated as good, fair, or poor quality. In general, a good-quality study met all criteria. A fair-quality study did not meet, or it was unclear if it met, at least one criterion but had no known important limitations that could invalidate its results. A poor-quality study had a single fatal flaw or multiple important limitations.

Methods Used to Analyze the Evidence

Meta-Analysis

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the Kaiser Permanente Research Affiliates Evidence-Based Practice Center (EPC) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Extraction and Quality Assessment

Two reviewers independently critically appraised all articles that met inclusion criteria using the USPSTF design-specific quality criteria supplemented by the Newcastle Ottawa Scales for cohort and case-control studies and by QUADAS (Quality Assessment of Diagnostic Accuracy Studies) and QUADAS II for studies of diagnostic accuracy (see eTable 1 in the systematic review supplement). Poor-quality studies (those with a single fatal flaw or multiple important limitations that could invalidate results) were excluded from the review. Disagreements about critical appraisal were resolved by consensus and, if needed, consultation with a third independent reviewer. One reviewer extracted key data from included studies; a second reviewer checked the data for accuracy. Tables generally included details on study design and quality, setting and population (e.g., country, inclusion criteria, age, sex, race/ethnicity, risk factors for thyroid cancer), screening and treatment details, reference standard or comparator details (if applicable), length of follow-up, and outcomes (e.g., cancer yield, diagnostic accuracy, cancer morbidity, mortality, and harms).

Data Synthesis and Analysis

For each key question (KQ), the number and design of included studies, summary of results, consistency and precision of results, reporting bias, summary of study quality, limitations of the body of evidence, and applicability of the findings were summarized. Findings were synthesized by KQ, screening test (e.g., palpation, ultrasound) or treatment (e.g., type of surgery, radioactive iodine therapy), and type of outcome. Because of the limited number of studies and the clinical heterogeneity of studies, the analyses were largely descriptive.

Random-effects meta-analyses were conducted using the restricted maximum likelihood estimation method to estimate the harms of surgical treatment of thyroid cancer (permanent hypoparathyroidism and permanent recurrent laryngeal nerve palsy). In subgroup analysis when the number of studies was less than 5, a fixed-effects model was used. The presence and magnitude of statistical heterogeneity were assessed among pooled studies using the I^2 statistic. Visual inspection of plots stratified or ordered by key study characteristics accounting for clinical heterogeneity among studies was conducted to see if these characteristics affected rates of surgical complications. Key study characteristics included the type of surgery (e.g., partial or total thyroidectomy with or without lymph node dissection; type of lymph node dissection), case mix of patients (e.g., histology of thyroid cancer, average tumor size, average age), setting (e.g., country, year), and type and definition of outcome (e.g., criteria for permanent harm). It was not possible to evaluate associations of surgical complications with study quality (because all studies were fair quality) or surgical experience (because experience and surgical volume were not reported in individual studies). Funnel plots and the Egger linear regression method were used to examine whether the distribution of the effect sizes was symmetric with respect to effect precision.

Significance threshold was 2-sided $P = .05$. All analyses were performed using R version 3.2.2 (R Project for Statistical Computing).

Methods Used to Formulate the Recommendations

Balance Sheets

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The U.S. Preventive Services Task Force (USPSTF) systematically reviews the evidence concerning both the benefits and harms of widespread implementation of a preventive service. It then assesses the certainty of the evidence and the magnitude of the benefits and harms. On the basis of this assessment, the USPSTF assigns a letter grade to each preventive service signifying its recommendation about provision of the service (see table below). An important, but often challenging, step is determining the balance between benefits and harms to estimate "net benefit" (that is, benefits minus harms).

U.S. Preventive Services Task Force Recommendation Grid*

Certainty of Net Benefit	Magnitude of Net Benefit			
	Substantial	Moderate	Small	Zero/Negative
High	A	B	C	D
Moderate	B	B	C	D
Low	Insufficient			

**A*, *B*, *C*, *D*, and *I (Insufficient)* represent the letter grades of recommendation or statement of insufficient evidence assigned by the USPSTF after assessing certainty and magnitude of net benefit of the service (see the "Rating Scheme for the Strength of the Recommendations" field.

The overarching question that the USPSTF seeks to answer for every preventive service is whether evidence suggests that provision of the service would improve health outcomes if implemented in a general primary care population. For screening topics, this standard could be met by a large randomized controlled trial (RCT) in a representative asymptomatic population with follow-up of all members of both the group "invited for screening" and the group "not invited for screening."

Direct RCT evidence about screening is often unavailable, so the USPSTF considers indirect evidence. To guide its selection of indirect evidence, the USPSTF constructs a "chain of evidence" within an analytic framework. For each key question, the body of pertinent literature is critically appraised, focusing on the following 6 questions:

1. Do the studies have the appropriate research design to answer the key question(s)?
2. To what extent are the existing studies of high quality? (i.e., what is the internal validity?)
3. To what extent are the results of the studies generalizable to the general U.S. primary care population and situation? (i.e., what is the external validity?)
4. How many studies have been conducted that address the key question(s)? How large are the studies? (i.e., what is the precision of the evidence?)
5. How consistent are the results of the studies?
6. Are there additional factors that assist the USPSTF in drawing conclusions (e.g., presence or absence of dose–response effects, fit within a biologic model)?

The next step in the USPSTF process is to use the evidence from the key questions to assess whether there would be net benefit if the service were implemented. In 2001, the USPSTF published an article that documented its systematic processes of evidence evaluation and recommendation development. At that time, the USPSTF's overall assessment of evidence was described as good, fair, or poor. The USPSTF realized that this rating seemed to apply only to how well studies were conducted and did not fully capture all of the issues that go into an overall assessment of the evidence about net benefit. To avoid confusion, the USPSTF has changed its terminology. Whereas individual study quality will continue to be characterized as good, fair, or poor, the term *certainty* will now be used to describe the USPSTF's assessment of the overall body of evidence about net benefit of a preventive service and the likelihood that the assessment is correct. Certainty will be determined by considering all 6 questions listed above; the judgment about certainty will be described as high, moderate, or low.

In making its assessment of certainty about net benefit, the evaluation of the evidence from each key question plays a primary role. It is important to note that the USPSTF makes recommendations for real-world medical practice in the United States and must determine to what extent the evidence for each key question—even evidence from screening RCTs or treatment RCTs—can be applied to the general primary care population. Frequently, studies are conducted in highly selected populations under special conditions. The USPSTF must consider differences between the general primary care population and the populations studied in RCTs and make judgments about the likelihood of observing the same effect in actual practice.

It is also important to note that one of the key questions in the analytic framework refers to the potential harms of the preventive service. The USPSTF considers the evidence about the benefits and harms of preventive services separately and equally. Data about harms are often obtained

from observational studies because harms observed in RCTs may not be representative of those found in usual practice and because some harms are not completely measured and reported in RCTs.

Putting the body of evidence for all key questions together as a chain, the USPSTF assesses the certainty of net benefit of a preventive service by asking the 6 major questions listed above. The USPSTF would rate a body of convincing evidence about the benefits of a service that, for example, derives from several RCTs of screening in which the estimate of benefits can be generalized to the general primary care population as "high" certainty (see the "Rating Scheme for the Strength of Recommendations" field). The USPSTF would rate a body of evidence that was not clearly applicable to general practice or has other defects in quality, research design, or consistency of studies as "moderate" certainty. Certainty is "low" when, for example, there are gaps in the evidence linking parts of the analytic framework, when evidence to determine the harms of treatment is unavailable, or when evidence about the benefits of treatment is insufficient. Table 4 in the methodology document listed below (see the "Availability of Companion Documents" field) summarizes the current terminology used by the USPSTF to describe the critical assessment of evidence at all 3 levels: individual studies, key questions, and overall certainty of net benefit of the preventive service.

Sawaya GF, Guirguis-Blake J, LeFevre M, Harris R, Petitti D; U.S. Preventive Services Task Force. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med. 2007;147(12):871-875. [5 references].

Rating Scheme for the Strength of the Recommendations

What the United States Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read the "Clinical Considerations" section of the USPSTF Recommendation Statement (see the "Major Recommendations" field). If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies

Level of Certainty	Description
	• Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence
	As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

Cost Analysis

The U.S. Preventive Services Task Force (USPSTF) does not consider the costs of providing a service in this assessment.

Method of Guideline Validation

Comparison with Guidelines from Other Groups

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Peer Review

Before the U.S. Preventive Services Task Force (USPSTF) makes its final determinations about recommendations on a given preventive service, the Evidence-based Practice Center and the Agency for Healthcare Research and Quality send the draft evidence review to 4 to 6 external experts and to Federal agencies and professional and disease-based health organizations with interests in the topic. The experts are asked to examine the review critically for accuracy and completeness and to respond to a series of specific questions about the document. The draft evidence review is also posted on the USPSTF Web site for public comment. After assembling these external review comments and documenting the proposed response to key comments, the topic team presents this information to the USPSTF in memo form. In this way, the USPSTF can consider these external comments before it votes on its recommendations about the service. Draft recommendation statements are then circulated for comment among reviewers representing professional societies, voluntary organizations, and Federal agencies, as well as posted on the USPSTF Web site for public comment. These comments are discussed before the final recommendations are confirmed.

Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF Web site from November 22 to December 26, 2016. Many respondents shared personal stories of how their clinician noticed a lump during physical examination, often prompted by symptoms such as hoarseness or throat pain, and expressed concern that the recommendation would prevent diagnosis of such cancer cases. Clinicians who interpreted the recommendation as discouraging them from performing neck examination also expressed concern. In response, the USPSTF expanded the Clinical Considerations section to clarify that this recommendation does not apply to persons who experience hoarseness, pain, difficulty swallowing, or other throat symptoms or persons who have lumps, swelling, asymmetry of the neck, or to other reasons for a neck examination.

Recommendations of Others

Recommendations for screening from the following groups were considered: the American Cancer Society, the American Academy of Family Physicians, the Canadian Task Force on the Periodic Health Examination, the American Thyroid Association, the American Association of Clinical Endocrinologists, the American College of Endocrinology, and the Associazione Medici Endocrinologi.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendation is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Benefits of Early Detection and Treatment

The U.S. Preventive Services Task Force (USPSTF) found inadequate direct evidence to determine whether screening for thyroid cancer in asymptomatic persons using neck palpation or ultrasound improves health outcomes. However, the USPSTF determined that the magnitude of benefit can be bounded as no greater than small, based on the relative rarity of thyroid cancer, the apparent lack of difference in outcomes between patients who are treated versus only monitored (i.e., for the most common tumor types), and the observational evidence demonstrating no change in mortality over time after introduction of a population-based screening program.

Potential Harms

Harms of Early Detection and Treatment

The U.S. Preventive Services Task Force (USPSTF) found inadequate direct evidence to assess the harms of screening for thyroid cancer in asymptomatic persons. The USPSTF found adequate evidence to bound the magnitude of the overall harms of screening and treatment as at least moderate, based on adequate evidence of serious harms of treatment of thyroid cancer and evidence that overdiagnosis and overtreatment are likely consequences of screening.

Qualifying Statements

Qualifying Statements

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific clinical preventive services for patients without obvious related signs or symptoms.
- It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.
- The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.
- Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality (AHRQ) or the U.S. Department of Health and Human Services.

Implementation of the Guideline

Description of Implementation Strategy

The experiences of the first and second U.S. Preventive Services Task Force (USPSTF), as well as that of other evidence-based guideline efforts, have highlighted the importance of identifying effective ways to implement clinical recommendations. Practice guidelines are relatively weak tools for changing clinical practice when used in isolation. To effect change, guidelines must be coupled with strategies to improve their acceptance and

feasibility. Such strategies include enlisting the support of local opinion leaders, using reminder systems for clinicians and patients, adopting standing orders, and audit and feedback of information to clinicians about their compliance with recommended practice.

In the case of preventive services guidelines, implementation needs to go beyond traditional dissemination and promotion efforts to recognize the added patient and clinician barriers that affect preventive care. These include clinicians' ambivalence about whether preventive medicine is part of their job, the psychological and practical challenges that patients face in changing behaviors, lack of access to health care or of insurance coverage for preventive services for some patients, competing pressures within the context of shorter office visits, and the lack of organized systems in most practices to ensure the delivery of recommended preventive care.

Dissemination strategies have changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, the USPSTF will make all its products available through its Web site . The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access USPSTF materials and adapt them for their local needs. Online access to USPSTF products also opens up new possibilities for the appearance of the annual, pocket-size *Guide to Clinical Preventive Services*.

To be successful, approaches for implementing prevention have to be tailored to the local level and deal with the specific barriers at a given site, typically requiring the redesign of systems of care. Such a systems approach to prevention has had notable success in established staff-model health maintenance organizations, by addressing organization of care, emphasizing a philosophy of prevention, and altering the training and incentives for clinicians. Staff-model plans also benefit from integrated information systems that can track the use of needed services and generate automatic reminders aimed at patients and clinicians, some of the most consistently successful interventions. Information systems remain a major challenge for individual clinicians' offices, however, as well as for looser affiliations of practices in network-model managed care and independent practice associations, where data on patient visits, referrals, and test results are not always centralized.

Implementation Tools

Mobile Device Resources

Patient Resources

Pocket Guide/Reference Cards

Quick Reference Guides/Physician Guides

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Final recommendation statement: thyroid cancer: screening. [internet]. Rockville (MD): U.S. Preventive Services Task Force (USPSTF); 2017 May [7 p]. [34 references]

Adaptation

Not applicable: The guideline is not adapted from another source.

Date Released

2017 May

Guideline Developer(s)

U.S. Preventive Services Task Force - Independent Expert Panel

Guideline Developer Comment

The U.S. Preventive Services Task Force (USPSTF) is a federally-appointed panel of independent experts. Conclusions of the USPSTF do not necessarily reflect policy of the U.S. Department of Health and Human Services or its agencies.

Source(s) of Funding

The U.S. Preventive Services Task Force (USPSTF) is an independent, voluntary body. The U.S. Congress mandates that the Agency for Healthcare Research and Quality (AHRQ) support the operations of the USPSTF.

Guideline Committee

U.S. Preventive Services Task Force (USPSTF)

Composition of Group That Authored the Guideline

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Conflict of Interest Disclosures

All authors have completed and submitted the International Committee of Medical Journal Editors (ICMJE) Form for Disclosure of Potential Conflicts of Interest. Authors followed the policy regarding conflicts of interest described at https://www.uspreventiveservicestaskforce.org/Page/Name/conflict-of-interest-disclosures. All members of the USPSTF receive travel reimbursement and an honorarium for participating in USPSTF meetings. No other disclosures are reported.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: U.S. Preventive Services Task Force. Guide to clinical preventive services. 2nd ed. Baltimore (MD): Williams & Wilkins; 1996. Chapter 18, Screening for thyroid cancer. p. 187-91. [25 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the U.S. Preventive Services Task Force (USPSTF) Web site.

Availability of Companion Documents

The following are available:

Evidence Reviews:

- Lin JS, Bowles EJA, Williams SB, Morrison CC. Screening for thyroid cancer: updated evidence report and systematic review for the U.S. Preventive Services Task Force. JAMA. 2017 May 9;317(18):1888-1903.
- Lin JS, Bowles EJA, Williams SB, Morrison CC. Screening for thyroid cancer: a systematic evidence review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 151. Publication No. 15-05221-EF-1. Rockville (MD): Agency for Healthcare Research and Quality; 2017 May. 124 p.

Available from the U.S. Preventive Services Task Force (USPSTF) Web site.

The following is also available:

- Screening for thyroid cancer: clinical summary. Rockville (MD): U.S. Preventive Services Task Force; 2017 May. 1 p. Available from the USPSTF Web site.

The Electronic Preventive Services Selector (ePSS) is an application designed to provide primary care clinicians and health care teams timely decision support regarding appropriate screening, counseling, and preventive services for their patients. It is based on the current, evidence-based recommendations of the USPSTF and can be searched by specific patient characteristics, such as age, sex, and selected behavioral risk factors.

Patient Resources

Myhealthfinder is a tool that provides personalized recommendations for clinical preventive services specific to the user's age, gender, and pregnancy status. It features evidence-based recommendations from the USPSTF and is available at www.healthfinder.gov.

NGC Status

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